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APHASIA, AND THE PHYSIOLOGY OF SPEECH.

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PART I.—APHASIA.

For the sake of a definite line of reading, the writer selected the above subject a few months ago, and has jotted down in the course of study such facts and theories as seemed to have the most importance, without regard to their novelty, and with no attempt to separate the well known and common place from those more new and startling. The desire was not to throw new light on the subject, but to collect enough of the scattered rays existing to illuminate the obscure relations of the faculty of speech to the other cerebral functions.

*Historical Survey.*—The literature of aphasia has assumed such proportions during the last ten years as to render it difficult to select such facts as shall best represent its growth. The symptom, aphasia, has from the first been swallowed up in discussion concerning the location of the faculty of speech, and this discussion is decidedly of French origin. It seems imperative, therefore, to present an outline of it here, however frequently it has been summarized before, since it is the French root, stimulated by French enthusiasm, which has produced such luxuriant foliage. The little fruit which has yet ripened is not quite of the expected variety. The following facts are collated from French authorities.

Cases which would now be called aphasia were recorded by ancient writers, but excited little intelligent interest till the present century. Cullen and Sauvages, as Troussseau says, wrote many deplorable things on *alalia*. Towards the close of the last century, J. P. Frank distinguished various kinds of *alalia* from *aphonia*, but attributed the aphasic symptoms to partial paralysis of the tongue. Joseph Frank

also failed to perceive the higher sources of loss of speech, and sought the lesion in the medulla at the roots of the glosso-pharyngeal and hypo-glossal nerves.

In 1810, Gall commenced the publication of his great work devoted to the localization of the mental faculties. By conjecture, based on his early observations of the prominence of the eyes (*yeux déprimés*) in persons whose power of memorizing words was great, he placed the faculty of language in the anterior lobes. He also supported this view by two cases of loss of speech—one reported by Pinel and one by Baron Larrey.

According to Bouillaud, Gall did not distinguish clearly between the faculty of language on its mental side and the power of articulating the movements necessary to articulate speech. This distinction he himself made in a memoir read to the Academy in 1825 (*Traité de l'Encéphalite*). In this paper he affirmed that the centre of coördination for speech was in the anterior lobes. In 1839, he supported his views with new facts and arguments, and once more in 1848. He claims at this time to have found no evidence opposed to his theory of location, in seven or eight hundred cases collected by him. He even offered a reward of five hundred francs for a single case of extensive disease of the anterior lobes without impairment of speech. In the discussion of 1865, he denied that any such case had been presented. He had, however, previously attached to his offer the difficult condition that he should have an opportunity to see the patient, living, and the brain after death, in order to personally verify all the facts in the case. This want of confidence on the part of M. Bouillaud in his *confrères* may well excuse an occasional lack of it in strangers.

In 1820, Lordat, who became aphasic himself eight years after, ascribed the affection, which he called *alalia*, to defect of the centres of coördination used in speech. After his recovery, he stated that he was conscious of no impediment to thought, but could neither express his ideas by written nor by spoken words. He argued from

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his own case that words were not necessary to thought.

In 1836, Dr. Marc Dax, in an essay entitled "Lesions de la moitié gauche de l'en-céphale coïncidant avec l'oubli des signes de la pensée," stated that as far back as 1800 he had noticed the frequent concurrence of loss of speech and right hemiplegia. His essay was republished in 1865, and was referred to a committee whose report furnished the basis of the famous discussion at the Academy of Medicine in Paris. (*Gaz. Hebdom.*, Paris, 1865, Avril, No. 17, p. 259.) In 1863, Dr. G. Dax, in a paper read before the Academy, had endeavored to show that not only was the lesion in aphasia invariably seated in the left hemisphere, as his father had shown, but in the anterior and outer portion of the middle lobe of it.

In 1856, Dr. Marcé endeavored to show a distinction between the coördinating centres for speech and writing, but did not attempt to locate either. (*Mem. Soc. Biolog.*, 1856.)

In 1861, a discussion arose in the Société Anthro-polique upon the localization of the cerebral functions. Dr. Gratiolet asserted that such attempts had been heretofore failures. Dr. Aubertin cited cases to show that the anterior lobes of the brain were the seat of the coördinating power necessary to speech. M. Broca, though at first sceptical, in consequence of two striking cases of aphasia which opportunely occurred, became one of the strongest partisans of the localization theory. He not only placed the lesion in aphasia in the left anterior lobe, but believed he had found the seat of the faculty of *articulate language* in the *posterior third of the third left frontal convolution*. His two cases were first published in August and November, 1861. (*Sur le Siège de la Faculté du Langage Articulé. Bul. de la Soc. Anat.*, Paris, 1861.)

In consequence of this bold theory of M. Broca, observations of the lesions in aphasia became more frequent and exact. Clinical observations, with and without autopsies, were reported by Drs. Charcot, Vulpian, Parrot and Fernet. Rousseau was at this time collecting the many admirably described cases which form the ground work of his amnesic theory of aphasia. Dr. J. Hughlings Jackson was investigating the causes of aphasia, and, in 1864, published a most suggestive paper on the "Loss of Speech; its Association with Valvular Disease of the Heart and with

Hemiplegia of the Right Side." (*London Hospital Reports*, vol. i.)

In April, 1865, commenced a long and interesting discussion upon aphasia in the Academy of Medicine. In December, 1864, M. Lelut, one of a committee consisting of Messrs. Bouillaud, Béclard and Lelut, to whom had been referred the paper of Dr. M. Dax, had made a minority report. In it he briefly disavowed the whole theory of localization, and classed all attempts at locating the faculty of speech as unscientific and phrenological. The following April, M. Bouillaud presented a majority report, reviewing the subject at length and criticizing M. Lelut severely. He defended the doctrines of Gall in general, and confirmed his location of the sexual faculty in the cerebellum and of the faculty of speech in the anterior lobes. Rousseau followed in a critical analysis of some new cases of his own, and summarized the observations recorded up to that time in an able and eloquent manner. He presented and argued at length his theory of amnesia, or loss of memory, as the cause of aphasia.

The discussion was continued for several weeks, and was participated in by Messrs. Parchappe, Briquet, Bouillaud, Pierry, Baillarger, Bonnafont and Cerise. Messrs. Parchappe, Baillarger and Cerise, physicians to hospitals for the insane, opposed the theory of local faculties, strongly maintaining the unity of mind. Fournie (*Physiologie de la Voix et la Parole*, Paris, 1866) and Vulpian (*Legons de Physiologie du Système Nerveux*, Paris, 1866) also rejected this theory.

Since 1865, the literature upon this subject has been constantly extending in scope and interest, and English authors have continued the investigations inaugurated by the French savans. The prominent papers on aphasia, and the questions suggested by its phenomena, are as follows:—Dr. Gardner, on the Function of Articulate Speech, Glasgow, 1865; Dr. Banks, a paper in the Dublin Quarterly Journal of Mental Science, February, 1865; Dr. Wm. Ogle, Aphasia and Agraphia, St. George's Hospital Reports, 1866; Dr. Moxon's theory of the One-sided Lesion in Aphasia, British and Foreign Review, April, 1866; Dr. Wilks on Nervous Diseases, Guy's Hospital Reports, 1866; Dr. Popham on Aphasia, Dublin Journal of Mental Science, Aug., 1867; Dr. Robertson, in the British Journal of Mental Science, Jan., 1867; Dr. Hughes Bennet, read before the British Medical

Association at Norwich, 1868; Dr. J. W. Ogle, thirty cases of Defective Speech, with Disease of the right Side of the Brain, *Lancet*, 1868, vol. i. p. 371, vol. ii. p. 111; Maudsley concerning Aphasia, *Lancet*, Nov. 28th and Dec. 5th, 1868; H. Charlton Bastian, M.D., On the various Forms of Loss of Speech in Cerebral Diseases, in the *British and Foreign Review*, Jan., 1869, p. 209, to April, p. 470; Dr. Carnley, *Medical Times and Gazette*, Feb. 13th, 1869; and Dr. Bateman, in the *British Journal of Mental Science*, 1868 and 1869, and in the *Lancet*, Feb. 13th, 1869.

The principal papers by American observers which have come to my notice are the following:—Dr. Austin Flint, Sr., Cases in the *N. Y. Medical Record*, No. 1; Dr. Richardson, in the *Buffalo Medical Journal*, May, 1867; Dr. Wilber, of Syracuse, in the *American Journal of Insanity*, July, 1867; On Aphasia as illustrated by Congenital Defect, Dr. Seguin, late Resident Physician of the *New York Hospital*; A Statement of the Aphasia Question, with a report of fifty cases, *Quar. Jour. of Psychological Science*, vol. ii., Jan., 1868; Dr. Edes, a fully reported case, with an autopsy and microscopical examination, *Boston Med. and Surg. Journal*, Feb. 6th, 1868; and Dr. Bartholow, *Jour. of Mental Science*, April, 1868.

Dr. Niemeyer has reported a case of aphasia, with remarks, which may be found in the *Times and Gazette*, Jan., 1870. The recent contributions of German writers may be found in Dr. Bateman's paper, in brief (*Jour. of Mental Science*, Jan. and April, 1868).

*Aphasia.*—The term *aphasia* was first adopted by Rousseau. The old term, *alaïs*, included, as he says, "a monstrous assemblage of contradictory phenomena," and was entirely inappropriate to the symptoms to be wished to include. *Aphemia*, besides having a double signification, was not comprehensive enough, having been applied by Broca to the loss of articulate language alone. The adoption of a name would seem to imply the duty of definition. This Rousseau gave, in spite of his attempted refusal. He makes aphasia include, in varying proportions, the loss of memory, or amnesia of speech, writing and gesture.

"Aphasia," he says, "consists in a loss of memory for words, in a greater or less degree; of the memory of acts by which words are articulated; and of intelligence." (Clinical Medicine, vol. i. p. 273.) He rejects such cases of defective speech or ex-

pression as depend on the paralysis of the organs involved, without loss of memory or of coördinating power.

Since the name and definition are Rousseau's, we will select one of his cases by way of illustration. It is translated and slightly abbreviated from the *Bulletin de l'Académie de Médecine* (vol. 30, p. 650). "A poor workman, who had been educated at a seminary for the priesthood, and whose mind was therefore somewhat cultivated, was seized with apoplexy after a debauch. There was paralysis of the right side, and from the moment of the attack he could only say, *cousin*. When irritated by questions, he would sometimes cry out *Sacré*! with the evident intonation of an oath. When nearly well of his paralysis, I tried to teach him to write. He wrote his name, *Pacquet*, correctly, but when asked to write the name of his wife, *Julie*, he still wrote *Pacquet*. The name of the month was also *Pacquet*. This was the extent of his ability in writing. When asked to make the gesture of a man playing the clarinet, he made that of a man who beats a drum. When shown how to blow a clarinet, he imitated the motions clumsily; but when asked to beat the drum, he hesitated a moment, and then went on blowing the clarinet. Here, then, was a man of cultivation prevented from manifesting his thoughts either by speech, writing or gesture."

To complete the illustration, it is necessary to observe that the mind was impaired in this case. The attention was feeble and the memory badly defective. It is to this defect of memory that Rousseau attributes the symptoms in aphasia. The defect, according to his definition, should implicate not only those nerve cells which serve as a storehouse for words, but those which preside over the coördination of the movements necessary to speech. The above case is, I think, quite a typical one, according to Rousseau's definition. His eloquent peroration before the Academy will develop still further his idea of aphasia. "The aphasic person, gentlemen, has become almost a child, with this difference only, that he has almost entirely forgotten what the child has never learned. The brain of the child is a field upon which the plough does not trace in vain its fertilizing furrow; the brain of the aphasic is the sea, where the prow of the ship leaves no trace."

*Aphemia.*—M. Broca uses the term *aphemia* in a more restricted sense than aphasia implies. The following is from his *Mémoire sur le Siège de la Faculté du Langage Ar-*

*ticulé* :—“The abolition of speech in persons who are neither paralyzed nor demented, constitutes a symptom so singular that it appears to me useful to designate it under a special name. I will give it, then, the name of *aphemia*, for what these patients lack is simply the faculty of articulating words. They hear and understand all which is said to them; they emit vocal sounds with ease, and execute with their tongues and lips movements much more extensive and energetic than those required for the articulation of sounds.”

The two cases to which M. Broca owed his conversion do not seem to have been purely aphemic. In the first, the patient could neither speak nor write. In the second, the one in which the lesion was so exactly limited to the second and third left frontal convolutions, the patient could not guide his hand to form letters, as M. Broca himself admits. He used, however, a very expressive pantomime, and seemed to understand all which was said to him. M. Broca therefore assumes that the general faculty of language was unimpaired. Since cases of pure aphemia are very rare, the advocates of M. Broca’s theory have in most instances been obliged to assume a connection between the loss of articulate speech and lesion of the third left frontal convolution, in presence of many other symptoms and of more varied and extensive lesions.

It is necessary to admit the existence of aphemia in a few well-observed instances. Rousseau mentions two or three only: one of a porter who could not speak a word, but who wrote a clear account of his attack; another of a gentleman who was speechless, but who gave orders and kept up a correspondence in writing. A still more remarkable case was that of a merchant of Valenciennes, who could write, but who was unable to read aloud what he had just written. (Bul. de l’Acad., 1865, vol. 30, p. 651.) Here the power of thought and of expression by writing remained, but, aphemia existing, the words just written could excite no audible response.

Forbes Winslow, out of twenty or more cases of defective speech, gives but one which can be considered pure aphemia. (Dis. of Brain and Mind, p. 495.) Of thirty-four cases reported by Dr. J. Hughlings Jackson, there is not one of aphemia. (Lond. Hospital Reports, vol. i.) Of the twenty-eight cases related by Rousseau in his Clinical Medicine, in fourteen the general faculty of language was impaired or destroyed. In thirteen the loss of the pow-

er of writing is not mentioned, but may be fairly inferred in some of them, while in others there was paralysis of the right hand, or inability to write when well. The only remaining case is that of M. Broca, which, we have seen, was defective as an example of aphemia. Of some thirty cases adduced on both sides, during the discussion at the Academy, but four were cases of aphemia. Two of these have been mentioned above, and were presented by Rousseau, the other two being offered by M. Bouillaud.

It was conceded then, by both parties, that aphemia, pure and simple, might exist; but our figures show out of a hundred or more cases of aphasia but five in which the faculty of writing persisted. In most cases of aphasia a certain degree of facility of expression by gesture remains, and is often the only guide in estimating the state of the intelligence. The power of designing, of calculation, of composing, playing, and singing music, or of playing games, may be affected or remain intact. All such cases, more or less complex, in which loss of speech is the chief symptom, M. Bouillaud considers as cases of aphemia, with additional symptoms which may or may not be present.

I have been unable to gather any cases in which these secondary symptoms have existed independently of affections of speech. A few cases of so-called *agraphia* are on record, but the inability to write has always been accompanied or preceded by some aphemic defect. As at present generally understood, aphasia includes both aphemic and agraphic defects in varying proportions, and, as we shall soon show, due sometimes to an impaired memory, sometimes to faults of coördination, and sometimes to both.

*Amnesic and Ataxic Aphasia*.—Using the term aphasia to cover that assemblage of symptoms most common in cases of loss of speech, not depending on paralysis or dementia, let us consider the distinction between the mental and motor side of such cases. Are the functions called memory and coördination lost independently of each other? It is evident Rousseau has viewed his cases particularly in their mental aspect. He argues at length the probable impairment of intellect in all of them. He thinks Lordat was deceived in his estimate of his own mental power while aphasic. He makes loss of memory for words the chief symptom, and styles loss of coördinating power the loss of memory for acts by which words are articulated.

His definition admits the existence of

ataxic symptoms to some extent in all cases, but he attributes them to amnesia. The idea of the act by which a word is pronounced exists in the mind only in gross, there being no consciousness or memory of individual muscular actions. We can only will the result of certain combined actions which follow spontaneously. In fact, so automatic does speech become that the adult is seldom conscious of this act of will, unless special attention is given to it. We are, therefore, unconscious, and do not remember the acts by which words are performed. It would be difficult for any but a teacher of elocution, or articulation, to recall or describe such acts without at the same moment performing them by way of reminder.

With proper deference, I would suggest that when memory, in the ordinary sense, takes no part in an act, the loss of power to perform such an act should not be set down to loss of memory. It seems like a forcible perversion of language, for the sake of adapting facts to a theory, to speak of mental and motor symptoms as alike due to loss of memory. If by memory is meant the unconscious power of retaining and reproducing impressions which the nerve cell possesses wherever found, then paralysis may be styled a loss of memory. The term was evidently used in its ordinary sense as applied to words; and if so, it was illogical to use it in a different sense when applied to the acts by which words are performed.

M. Bouillaud, in 1825, distinguishes between the mental and motor aspect of speech, and in 1865 opposed the amnesic theory of Rousseau. M. Broca says, in relation to aphemia:—"One can make, then, two hypotheses on the nature of the special faculty of articulate language. In the first it will be a superior faculty, and aphemia will be an intellectual disorder. In the second it will be a faculty of an order much less elevated, and aphemia will be only a disorder of locomotion."

The integrity of the faculty of language, on its mental side, can only be determined by spoken or written words, by acts performed in response to the requests of others, or by the subsequent testimony of the patient. As the first two modes of expression are absent and the third usually much impaired in aphasia, the evidence is necessarily limited. The best test of such integrity is furnished in those few cases where the lesion has spared the power of writing. Since the written corresponds exactly to the spoken word, and it is unnecessary to

suppose duplicate word-centres superintending the two methods of expression, the facility of expression by writing must be an index to the condition of the intellectual word-centre. In other terms, when the faculty of speech on its mental side is at fault, the written and spoken word will be equally affected. If the coördinating power alone is impaired, articulate speech may be affected independently of the power of writing.

It may be objected that the patient, in the case selected from Rousseau, could only say *cousin*, and could only write *Pacque*. Being a well-marked case of amnesic aphasia, the power both of speaking and writing was nearly lost, but the want of identity in the written and spoken words remaining may be attributed to lesion of the fibres conveying voluntary impulses. Aphasia is seldom purely amnesic or purely ataxic, but partakes of both characters, or leans more or less decidedly to one or the other form, with a varying amount of impairment of voluntary transmission.

A case or two of incomplete aphasia, coming under my own observation, may prove better by way of illustration than others in which the entire loss of speech prevented all knowledge of the subjective phenomena.

A man, aged 60, of eccentric habits and insane tendencies, became more and more irascible and suspicious, giving way at last to horrible delusions respecting the conduct of his children. While denouncing them to his brother, he was seized with an attack of apoplexy, the more prominent effects of which were transitory. He retained his delusions, however, and also firmly believed that at the moment of the attack his brother had struck him. When I first saw him, there existed a defect of speech, which his friends referred to the apoplectic seizure. There was no labial nor lingual paralysist, and his articulation was perfectly distinct. There was a great defect in his expression of ideas which resembled incoherence, but seemed due to loss of memory. Substantives were remembered with difficulty, and pronouns were badly misapplied. He made strange circumlocutions to express his ideas which seemed definite enough to his mind, although delusional to some extent. Only those constantly with him could unravel his meaning.

For instance, in asking for his shirt and drawers, he would say, "Give me them that were on my breast, and those that I wear on my legs." In alluding to his brother's death, he used the singular per-

phrase, "when he was about being got through with." He could write freely, but his expressions were of precisely the same character. For instance, in referring to his children's conduct and its effect on himself, he wrote:—"You will be guilty of the death, of the tears of those, and prayers of those, who have lived the life of an honest man. I mean J—— B——." As if, by a happy effort, he succeeded, in the last sentence, in making a clear statement of himself as the person referred to. His gestures were often expressive of anger or impatience, but gave little help in understanding his meaning beyond designating objects and directions.

This case shows a partial affection of the general faculty of language, on its mental side, occurring in a case of delusional insanity, in consequence of an apoplectic seizure. The loss of memory for substantives in this case was partial, but in a case reported by M. Pierry in 1826, and in others of more recent date, this loss has been quite complete. M. Pierry gave to this form of aphasia the term *amnemonia*, and charges Rousseau with having stolen his theory and given a new name to the same disease.

A gentleman, formerly prominent in business and politics, presents the following permanent defects of speech, with hemiplegia of the right side. There is no lingual or labial paralysis discernible, and yet articulation is very clumsily performed. At times he pronounces a few sentences distinctly; at others his speech is a mere jumble of sounds. At times he can say "Hopkinton," which has become a sort of test word with him, quite well; at others it degenerates into something like "Blopsington." He gets impatient when unable to make himself understood, and closes the conversation by saying quite distinctly, "I can't talk."

His expression is also defective for another reason. He retains his interest in politics, and often attempts to relate some incident in his experience, but usually forgets the names of persons and places important to his story. In such case he likewise gets impatient and says, "I can't remember." He also has the singular habit of saying "no" when he means "yes," and the opposite. He has not learned to write with his left hand, as he thinks it would be useless to try. He is aware of the double nature of his defective expression, and thinks the mental is nearly as bad as the motor difficulty. The want of co-ordination is, however, the most striking

feature of the case. His intelligence is but little impaired, aside from loss of memory for names. There is less emotional disturbance than is often seen in cases of hemiplegia without aphasia.

The preceding cases were under the care of Dr. Walker, at the Boston Hospital for the Insane.

[To be continued.]

#### SIMPLE DRESSING BY CONTINUED MOISTURE.

By Dr. LEON LE FORT. Translated by FRANK W. DRAPER, M.D., Boston.

THE mortality after operations, higher in military than in civil practice, greater in the larger hospitals of cities than in the smaller country hospitals, more considerable in those of Paris than in those of London, depends especially on the more or less frequent development of two formidable complications, pyæmia and erysipelas. Sometimes, in some of our hospitals, these diseases become so grave and appear with such frequency that they may be characterized as an epidemic, so that, at such seasons, one can hardly make a simple incision without seeing erysipelas follow; while if operations of some magnitude are ventured upon, it is with dread of pyæmia.

Such a condition of things becomes a source of constant peril to our patients, but it is also of positive interest in the progress of science, unavoidably pre-occupied with the uncertainty of its results. Surgery in Paris is compelled to assume extreme caution, while elsewhere, surgical practice, without doubt occasionally rash, can proceed ordinarily to a degree of boldness excusable by the extreme rarity of those grave complications which are so frequent in the majority of our hospitals. When the diseases are seen to extend with all the characteristics of an epidemic, and when it is remarked, moreover, that these epidemics, like that of puerperal fever, are limited sometimes to one hospital, sometimes to another, and are confined to one series of patients without invading an adjacent number, it is hard not to confess that equally with puerperal fever, there exists an underlying cause for erysipelas and pyæmia, capable of producing these effects, and to be sought for in some other condition than the contagious or rather infectious character of accidental wounds, surgical or puerperal.

In order that such epidemics should develop, it is necessary that there should be one spontaneous case as the origin; they

will therefore be rare in proportion as these single cases are rare; and they will be more infrequent still, if, when these original cases occur, the morbid receptivity of the influence of the poisonous germ is observed to diminish in other patients.

To diminish the frequency of these spontaneous cases, or to prevent the general spread of these diseases, if we cannot prevent their development in the single patient, is the problem. Independent of the constitutional conditions pertaining to race or previous habits of our patients, conditions which of course we cannot control, three elements combine to render these complications more or less frequent, viz.: the nursing, the diet, and the dressing employed.

The marked improvements introduced into our hospitals within the last ten years, the more general use of a regimen more largely restorative, and into which has gradually entered the use of tonics and stimulants, have changed our surgical results for the better. Hygiene and diet have a great influence on the more or less frequent spontaneous development of pyæmia, while the dressings used can prevent its spread; they can hinder not only the propagation, but even the inception of erysipelas.

If we can say "no epidemic without contagion," we can say with equal truth—no pyæmia, no surgical erysipelas, perhaps, indeed, no erysipelas at all, without a wound, either of the skin or the mucous membrane. So, although the notion of the contagiousness of these diseases is far from being accepted by all surgeons, all or nearly all will from observation agree that atmospheric air plays an important part in their propagation, whether the infectious properties be ascribed to the air itself, or be considered an element only in permitting or in producing the decomposition of pus and the formation of poisonous materials. Others, with equal truth, although led by other theories, have sought to prevent especially the absorption of the septic germs, by promoting the obliteration of the absorbed vessels, which exist at the surface of the wounds; this they attempt sometimes by modifying the methods of operating, sometimes by the use of astringent or caustic solutions as a dressing to the wound.

To substitute for the knife, which leaves the vascular openings patulous, some method producing instant obliteration of the vessels, has ever been the desideratum; it has been more or less realized by the use of the cautery in its different varieties; to which should be added the ligature, if it

were not the same method used under another name and with less perfect means.

After having for a long time under the names digestives, maturatives, detergents, agglutinatives, resolvents, &c., multiplied the formulae of ointments, surgeons have recently used hardly any except cerate; and this less to modify the condition of the wound than to prevent the dressings from sticking. Now, cerate has happily lost much of its old favor; abroad it has been almost wholly abandoned; and for my part, I have absolutely proscribed it, because as ordinarily used, a large share of the blame of traumatic erysipelas can be laid to its charge.

In a scientific spirit and with the hope and aim of reaching the original causes of erysipelas and especially of pyæmia, surgeons of the present generation, and many of our fathers, have originated and extolled various modes of surgical dressings. Although extremely diverse in the means employed, these methods all unite in the purpose to fulfil a common indication; and they can be classed in several distinct groups, of which we shall speak of the most important only, characterizing them according to their distinctive features.

To exclude the air was the object which M. Langier sought to accomplish by his "occlusive" dressing of gold-beater's skin. But this occlusion, although complete in wounds not long or deep, as in burns for example, is very imperfect, if indeed it is attained at all, when applied to amputations which are suppurating profusely. The application of the beater's skin prevents, moreover, the discharge of pus, and necessitates more or less frequently the perforation of the distended membrane. M. Chassaignac's dressing by occlusion prevented, in great measure, the contact of the air and allowed the escape of the discharges. But this dressing, excellent as it is when applied to old wounds whose granulations are well formed, has diachylon as its base; and I believe the use of this agent is sometimes accompanied with danger, when it is applied to recent wounds; and its employment has seemed quite often to be the source of erysipelas.

If M. Chassaignac seeks by his dressing to favor the escape of pus, at least he does not consider the contact of laudable pus with the wound a source of danger. To prevent the decomposition of pus, and to remove it entirely as fast as it is formed, meanwhile excluding the air, is the object proposed in M. Jules Guerin's apparatus for continued exhaustion. This method is

capable of giving excellent results in amputations, and it fulfils also an important indication we shall revert to hereafter, but the complicated apparatus and the difficulty of its adjustment are not unimportant objections.

Messrs. Mayor of Lausanne, Langenbeck and Valette of Lyons, have proposed to exclude the air, and to dissolve the pus as fast as it forms by placing the stump in a continued warm bath. This plan, belonging especially to the Berlin professor, has given only unfavorable results at Paris; it is true the apparatus employed, very different as it was from that used in Germany, contributed much towards its failure, by tending to arrest the circulation in the stump by the compression at its base of an elastic band. This treatment has given, when properly applied, good results in amputations of the leg and forearm, but it is of very different adaptation to amputation of the thigh. The necessity of maintaining a uniform temperature in the bath and the need of special apparatus have done much to prevent its general use.

Treatment by baths of carbonic acid and of oxygen have been wholly abandoned.

The instantaneous occlusion of the vessels has been attempted by the use of dressings with certain agents which, like concentrated perchloride of iron, form a superficial eschar on the bleeding surfaces, or like alcohol, or diluted perchloride of iron, coagulate the albumen and aid in the formation of a clot at the mouths of the vessels. This method, in great favor for some years, is allied to the use of the actual cautery and of melted pitch so much used centuries ago; it has, indeed, the merit of being less painful, although it is not itself devoid of pain, but it appears open to the grave objection that it does not accomplish all it claims.

Seeking simplicity in dressings and regarding it as of prime importance to preserve the wound in as clean a condition as possible, the English surgeons have, for a long time, used hardly any dressing except compresses of lint saturated with water or with some medicated solution; and to prevent the too rapid evaporation of the fluid, they cover the dressing with a smaller piece of air-tight material after the plan of Percy, Liston and Amussat. This practice, one of the best in its simplicity and in its results, is, however, open to some objections. Evaporation goes on in spite of the waterproof cover, especially at the edges of the dressing, and the dryness causes the compress to stick to the surface of the wound

at these points, after producing excoriation of the granulations and a slight loss of blood when the dressing is renewed; this is not a grave accident, indeed, but one which still has a certain importance because in transforming into a sort of new wound, however small, an old wound and one whose granulations are in full progress, it becomes too often the source of erysipelas.

Convinced of the contagiousness of erysipelas and pyæmia, and believing that the propagation of the disease is by infection and that the contamination has as its agent or medium, germs which are carried in the air from one ward to another, to act as ferments on the surface of the wounds, Lister, of Glasgow, now Professor in Edinburgh, seeks to destroy these germs in the wound. To attain this result he washes the wound with a weak solution of carbolic acid, and covers it with a dressing of the same agent, urging the precaution meanwhile, with considerable minuteness, to cleanse by the same means the knife he uses, and to wash the ligatures in a mixture of the acid with oil. This antiseptic dressing enjoyed great favor in England for a time, but seems now in less use, from what I saw in a number of days' observation in London; but if it does not appear at present to give the same brilliant results, even in the hands of its originator, as were expected at first, if it does not seem to prevent the spontaneous development of erysipelas, it still appears at least to have some influence over the spread of this disease as well as of pyæmia.

If we seek the indications which surgeons have attempted to fulfil by their various dressings, we find them as follows:

To exclude the air.

To change the condition of the wound, when expedient, by medicated dressings.

To maintain a certain degree of moisture.

To prevent the decomposition of the pus taken up by the dressing.

To keep the wound clean.

To prevent the adhesion of the dressings.

To destroy germs which might be the source of infection.

A slight modification of the methods usually employed has enabled me, as I believe, to fulfil these various indications, as already stated. I have absolutely rejected all fatty agents whatever, and I extend the same proscription to diachylon, so far as fresh wounds are concerned; and in no case, at least in hospitals, do I use lint, because by its power of absorption it becomes the ready receptacle of infectious germs. I cover the wound with one or more compresses, satu-

rated with a mixture containing one part of alcohol or camphorated alcohol, and nine parts of water; if the wound needs stimulating I add, according to the necessities of the case, a tenth part of a solution of sulphate of zinc. Over all I place a piece of oiled silk, kept in position by a few turns of bandage; and I take care that this covering shall be tight and entire. The evaporation of the fluid with which the compress is filled cannot progress, and the insensible perspiration, which occurs normally on the surface of the skin, being retained, the dressing becomes converted into a sort of continued bath.

Without the inconveniences of a maceration which distends the tissues and seems to lessen their vitality, without the annoyances caused by the necessity to use an apparatus applied with difficulty, I get the advantages of the bath of Mayor, Langenbeck and Valette, and those indeed of continued irrigation. The sedative effect of the water, modified according to necessity by the use of medicated solutions, controls the inflammation and keeps it within the bounds necessary to the process of cicatrization. The pus, excluded from the air, undergoes no change; it remains indeed about the wound, but the air-tight dressing showed us long ago the harmlessness of unaltered pus. The compresses cannot dry and adhere and are easily removed, and there is no fear of bruising the granulations. As regards cleanliness, it is seen at once to be absolutely attained. Finally, with respect to infection and the transportation of germs, the wound, being wet at the outset with alcoholized water, covered with compresses filled with the same fluid, and enclosed hermetically in an impermeable tissue, is fully protected from all contamination. This innovation upon a dressing in such general use, consisting essentially in the employment of a piece of oiled silk larger than usual, presents such an appearance of insignificance that I should have hardly dared to introduce it if it were not recommended by results which have convinced me of its efficacy.

In the months of January and February, 1868, when I had not yet begun to use this mode of dressing, I had in my female ward at La Cochon, and in the same bed, three cases of erysipelas. During the rest of the year two other cases occurred; in 1869, there were two, and two this year, one following partial sloughing of the flap after amputation of the breast, and the other, very slight, and extending only to a part of

the cheek and forehead in a patient who had a granular conjunctivitis.

In my male ward during a very active service in which were a great number of severe cases, not a single instance of erysipelas occurred in 1868 or 1869, and only one case in the first two months of 1870. This one case, so far from proving the inefficacy of the dressing testifies in its favor. The patient had a large wound on the forehead and another smaller one on the scalp. Both healed kindly, but a small boil appeared on the back of the head. Fearing erysipelas, on account of the region, I ordered the dressing, but a slight illness detained me for a few days from my visits. My interne, thinking the complication of little consequence, omitted the dressing, and erysipelas was the result of his confidence.

I do not have the hope, still less do I pretend to abort spontaneous cases of pyemia. In thirty months I have lost, by this grave complication, eight patients; three after an attempt to save the limb in compound fracture of the leg with protrusion of the tibia from the wound (a practice I have now abandoned); two after complicated fracture of the humerus; one after reversion of the arm; one after a lacerated wound of the foot, and one following a whitlow; but this last patient, who succumbed five days after his admission, had already, when received into the hospital, the symptoms of pyemia, whose first germs he had taken at La Pitié, from which he was discharged four days before.

On the other hand I have treated successfully, and cured without complication, four patients with fracture of the leg, one with fracture of the thigh, one with fracture of the clavicle, two with fractured humerus, one with fracture of the fibula—all compound; two others in which there was fracture of the elbow-joint with an opening into the articulation, and finally one in which was fracture over and between the condyles of the femur, with protrusion of the bone and escape of blood and gas into the knee-joint.

Capital operations have given the following results, viz.:

Disarticulation of the shoulder	1	1
Joint for gangrenous erysipelas, in a patient from medical side	3	2
Amputation of arm,	1	1
" of thigh,	3	3
" of leg,	6	5
" of foot,	2	2†

\* Pneumonia.

† One well, but died of phlebitis after five months.

Amputation of fingers,	3	3
Partial resection of tibia, olecranon, fibula,	3	3
Resection of lower jaw and part of tongue,	1	1
Resection of knee-joint,	1	1
	21	17
		4

The effect of this dressing on the progress of diffuse cellulitis or phlegmonous erysipelas has seemed to me equally remarkable. The affected part being kept in a sort of continued bath, but in a bath which does not cause maceration of the tissues, its swelling and redness are observed to diminish. I make use of Dobson's plan, however, when the disease is first commencing, and paint the part with tincture of iodine. Whatever part belongs to the antiphlogistic remedies and what to the dressing, out of thirty-six cases of diffuse phlegmonous erysipelas (eighty-seven cases of the hand, six of the hand and forearm, one of the wrist, eleven of the forearm, seven of the arm, two of the leg and one of the scalp), I have not had a single death; all rapidly recovering without even incurring those deep and extensive lesions which too often leave in their train complications more or less severe.

If, in fine, the dressings used can have any effect on the appearance of the complications so common in some if not in the majority of our hospitals, it is especially with reference to erysipelas that this influence is to be sought.

Recalling the time when, as assistant to my teachers at La Charité, Messrs. Denonvilliers and Velpeau, I hardly dared to open an abscess for fear of the supervention of erysipelas, I am deeply impressed on seeing two years go by without the development of a single case in a ward where a great number of men were treated for wounds and lesions often of a grave nature. Formerly, when I performed an important operation like an amputation, my chief anxiety was lest pyæmia should follow; what I anticipated as a constant dread was death; what I now expect as the proper result of active intervention is recovery.

However slight may be the innovation I have introduced in dressings, I cannot but think that to it is to be accredited a considerable share in the result attained. Without doubt it would be better to compare the results of a longer period, two or three years more, in order to place me beyond the error of premature judgment; but I believed, if the confidence in facts observed

was well grounded, our patients would be much benefited by a useful precaution: I thought that the introduction of this method into hospitals where erysipelas and pyæmia have prevailed for many years would allow its efficacy to be tested more fully; I hoped that if further facts do not justify my expectations, the good will and indulgence of the academy would pardon me for having deprived it, on a subject of so slight consequence, of time which it could have employed more usefully.

## Selected Papers.

### DEATH RESULTING FROM AN OVERDOSE OF STRYCHNIA.

By CHARLES BULLOCK.

A CASE of death, resulting from an overdose of strychnia, occurred recently in Pennsylvania under circumstances which render the case interesting and instructive to both medical practitioner and pharmacist.

The patient had been laboring under an attack of partial paralysis, and the medical attendant directed the following prescription:—

R. Strychnia murat, gr. iss. ;  
Liq. ferri iodid., 3vi. ;  
Syr. zingiberis q. s. ut ft., f3ij.

M. Sig. dose a teaspoonful.

The whole of this prescription was used as directed, and the bottle returned to the druggist, by order of the physician, for renewal of the medicine, the dose on renewal being increased to one and one-half teaspoonful. This was taken with apparent benefit to the patient, until the last dose, exhausting the contents of the bottle, was given. About an hour after, while at a meal, the patient complained of strange sensations, and was soon affected with tonic spasms, which are described by two medical gentlemen, who were called in, as well-marked results of an overdose of strychnia. Proper remedies were promptly used and the spasmodic action passed away, leaving the patient able to speak, but greatly prostrated, and, failing to respond to stimulants, death ensued in a few hours.

The bottle which contained the medicine was produced before the coroner's jury (composed of physicians and pharmacists). It appeared to have been drained of its contents to make up the last dose; adhering to the bottle were well-formed crystals, some of them about a line in length

and one-fourth line in thickness. Unfortunately, no chemical analysis was made to determine whether the crystals were *undissolved* muriate of strychnia or iodide of strychnia. A microscopical examination failed to carry much weight, on account of the destruction of the form of the crystal by washing previous to mounting, the size of the crystal not being accepted in evidence, as crystals of iodide of strychnia were shown nearly as large, made by simple deposition from a warm saturated solution.

The pharmacist by whom the prescription was compounded testified, "that he weighed out the muriate of strychnia, threw it into a graduated measure, added the two other ingredients, and stirred them up with a bone spatula until he thought the strychnia had all dissolved, as he could see no undissolved crystals or solid matter." To a question, he replied that he noticed an opalescent appearance, resembling a quinine mixture.

An inmate of the house with deceased testified, "that she was sure that the bottle of medicine was never shaken."

The prescription as above given had been sent to several prominent pharmacists, and the compoundings criticized by the jury. In some no chemical change was discernible; in others crystals readily recognizable as iodide of strychnia were floating through the mixture and deposited in the bottom of the bottle. In one case large crystals were contained in the bottle, evidently of the original strychnia salt undissolved.

The jury, after weighing all the evidence, returned a verdict of "Death from prostration, following the accidental administration of an overdose of strychnia."

"The jury further find, from examination of the assistant pharmacist, by whom the prescription was compounded, a want of proper attention to, or information in manipulation, which they cannot pass without notice and reprimand, as both efficiency and safety may depend on careful manipulating skill when potent remedies are prescribed.

"They further find that the ingredients of the prescription are subject to such chemical changes as renders the strychnia contained therein *liable* to be precipitated to the bottom of the bottle containing the prescription; and if the bottle should remain without proper agitation, an overdose of strychnia might result."

So much for the history of the case. We now wish to make some remarks on the chemical and pharmaceutical character

of the prescription, and throw out some thoughts on prescribing and compounding, as suggested by this case.

Muriate of strychnia is not officinal in the U. S. nor British Pharmacopoeias, and is rarely prescribed. It is much less soluble than the sulphate, requiring 50 parts of water, at 71° F., for solution (Gmelin's Handbook). The solubility of iodide of strychnia is not found in any authority which I have consulted. It is spoken of as *very insoluble*. My own determinations make its solubility 0.54 parts in 100 parts of water, at 60° F.\*

When a drop of syrup of iodide of iron is added to a cold saturated solution of muriate of strychnia, the insoluble iodide of the alkaloid is immediately formed.

I have before me the prescription alluded to in this communication, put up in two ways. In both the muriate of strychnia was previously dissolved in 3iss. of water. In No. 1 the strychnia solution was mixed with the iodide of iron, and the ginger syrup immediately added and well shaken. In No. 2 the strychnia solution was first added to the syrup of ginger, well shaken, and the iodide of iron added. In No. 1 the bottom of the bottle is covered with crystals of iodide of strychnia, and many floating crystals suspended in the mixture. In No. 2 no decomposition is discernible, and after standing four days no deposit has taken place.

On page 1418 of the U. Dispensatory, 13th edition (1870), after quoting from this Journal the experiments of Bouchardat and Gobley on the insolubility of iodine combinations with strychnia, the authors add:—"But though this fact establishes the *impropriety of combining solutions of iodine and strychnia in prescriptions*, yet it by no means justifies the inference drawn from it, that iodine might serve as an antidote to strychnia. Indeed, the contrary has been proved by the experiments of Mr. S. Darby, who found the precipitated iodide of strychnia was highly poisonous to the lower animals, &c."

We have, in the above quotation, information given regarding the insolubility of iodide of strychnia and the impropriety of prescribing iodine and strychnia solutions in combination.

It is clearly the duty of the pharmacist to see, when potent remedies are prescribed in solution, that the *solution is complete*. He ought, also, if allowed to

\* Hydrochloric and even acetic acid much increase the solubility of the iodide, without apparent decomposition, when the acids are very dilute.

dispense such articles, to be informed regarding the decompositions liable to occur, and if possible guard against mischief likely to result therefrom, or else return the prescription to the writer, with his objections clearly stated. He should also notice, when such a prescription is returned for renewal, whether any deposit has taken place in the bottle, and remove it by washing should such be the case. The question whether it is his duty to mark the bottle "Shake well," when the recipe gives no such direction, is one admitting of different opinions; but we think, when so marked, the error, if any, is on the side of prudence.

We would suggest to physicians, when prescribing a remedy like strichnia in solution to its usual *full dose*, to prescribe it alone, and to give *separately* whatever else may be deemed advisable. We have in our experience been made aware of changes unforeseen and unknown to us, until the event developed the facts.—*American Journal of Pharmacy.*

## Medical and Surgical Journal.

BOSTON: THURSDAY, SEPTEMBER 1, 1870.

### THE CHILDREN'S HOSPITAL.

More than a year ago, our predecessors in office placed in their editorial columns a communication\* relating to a new charitable institution in Boston. The idea of founding a hospital exclusively devoted to the care of sick children had long been floating in the minds of one and another of our physicians and benevolent citizens—suggested either by a humane consideration for the peculiar wants of that interesting class of sufferers, or by a knowledge of the good results which have been accomplished by such establishments in the Old World. Only one attempt, however, had hitherto been made to carry it into effect; and that, on account of the expense and unforeseen practical difficulties, was, after a brief experiment, reluctantly abandoned by its charitable projector. The idea was brought to the notice of some of our benevolent citizens somewhat more than a year ago, and, with their coöpera-

tion, the plans suggested were put on trial. We are glad to be put in possession of facts which show that the anticipations and hopes of the founders have been fully realized—indeed, that they have gone much beyond what was expected.

The views put forth by the originators of the plan were so fully expressed in our former number that we refrain from repeating them at length. The subject had been well studied before it was announced to the public, and the experiment was only made after mature deliberation and a careful study of the needs of the public. It was well known that provision already existed in Boston for the care of sick and maimed children; but it was seen that there was a large class of our poorer population who were constantly allowing their children to pass through acute attacks of disease in their own poor dwellings, in the midst of the various disadvantages which poverty entails; it was well known that the parents of such children were unwilling to be separated from their little ones, under such afflictions, by placing them in general hospitals, looking on hospitals as a place principally for cases of accident or as a last resort in illness. The projectors of The Children's Hospital hoped that they might accomplish that which the general hospitals could not so readily reach, by inducing the parents of children to send them to a hospital, made attractive in many ways, and do away with the aversion which the poor naturally feel for institutions of the kind, and in this wise commence the education of the poorer classes—inducing them to put their children under comfortable and hygienic circumstances while sick or maimed. The originators of the plan recognized the fact that there were prominent reasons why children could not be so well cared for in adult hospitals as in those especially devoted to their use; they knew that there were cases which were constantly denied admission at the other institutions of our city, on perfectly reasonable grounds, which could be properly admitted to a charity of their own. They wished to carry out a system, already so successfully inaugurated in some of our charities, of voluntary nursing by kind and cultivated

\* *Journal*, April 1, 1869.

Christian women, who have had experience in hospital work and who had devoted themselves to charity ; who were willing to engage in the work for no other recompence than the satisfaction of ministering to the physical and spiritual comfort of the sick. It is obvious that very few could be found, who are qualified for this office, who have the requisite faith, patience and self-denial. Such a corps of helpers, however, the hospital has been able to secure ; and the institution has been conducted by them with entire success. The managers felt, still farther, the importance of the fact which our large charities cannot so well recognize, that too little attention is likely to be paid there to the future permanent benefit of the patients. We sometimes fail, as physicians, to inquire, while we tide over the little sufferers in what seem to be temporary illnesses, what shall be life and health giving remedies for their whole life-journey. We forget our duty to build up the future man, while endeavoring to cure the child.

These and similar considerations induced the founders of the hospital to work for its establishment, and it has already become, as they predicted it would, an honorable and popular charity. The hospital was established in a moderate-sized house in Rutland Street in July of last year, and, since that time, it has cared for more than sixty patients, a number small in itself, but of some importance for the first year of a young institution. The character of the cases has been very satisfactory. With a certain proportion of chronic cases, as was to be expected, the majority of the patients have suffered from acute diseases and injuries, and have offered not only much of interest in the way of instruction, but a series of cures, comparing favorably with the statistics of other hospitals. During the past six months the house has been kept almost constantly full, and the demand for beds has been considerably in advance of the supply. The managers of the hospital, feeling the necessity for larger accommodations, have fortunately been able to procure a large mansion, on the corner of Rutland and Washington Streets, formerly the residence of a well-known citizen, and have

fitted it up for the use of the institution ; it is now already in successful operation. The object of the hospital is, as before, the reception and care of children between the ages of two and twelve, suffering from acute medical and surgical diseases. The beds in the hospital are free to those who are really poor, but a moderate charge is made to such as are able to pay ; patients outside the city are received only on payment of the regular board. With an increased number of beds and more ample arrangements for the administrative department, the hospital bids fair to go on satisfactorily in its good work ; and should the managers carry out, in the future, their plans looking to the admission of students, the education of nurses, a sanitarium in the country, &c., they cannot fail of meriting the esteem of the profession.

One word should be said of the great success of the system of nursing during the past year. In their first annual report, the managers thus speak of this feature of the institution :—

" The main point with them has been to secure for the children while inmates of the hospital, in connection with the best of care, a positively Christian nurture. And both these results, they are convinced, have been perfectly accomplished under the existing administration. Every person who has visited the hospital has been deeply impressed and highly gratified by witnessing the beautiful and striking effects which have been produced by the admirable management of the Superintendent and the ladies associated with her. A neater, more orderly, harmonious and happy group of children cannot be found in any Christian household. The whole air of the hospital, instead of being gloomy and depressing, is cheerful and gladsome. On entering the general ward one almost forgets that he is in the midst of the sick and suffering, as he sees on all sides smiling faces, and little hands playing with toys, or turning over the pages of illustrated books, and hears cheerful voices prattling merrily, or singing alone or together pleasant songs."

So far as the professional care of the children is concerned, the Medical Staff agree that no system of nursing has come under their notice which can compare with it in faithful efficiency and the attainment of good results.

## IN MEMORIAM.

In the midst of the preparations for war, just as the streets of Berlin had begun to echo the tramp of troops passing through on their way to the Rhine, the scientific world was called upon to mourn the loss of one of its brightest ornaments, humanity one of its most distinguished benefactors. Albrecht von Graefe died, July 20th, aged 43 years. As one who has not only been bound to him by ties of friendship, but had the opportunity in years gone by of listening to his instructions, it is the melancholy privilege of the writer to offer this hasty and imperfect sketch of his career.

Graefe was born in Berlin in the year 1828, losing his father the renowned military surgeon at an early age. At school he manifested a strong taste for mathematics, and, having attained much proficiency therein, turned his attention to the natural sciences and particularly to chemistry. Subsequently he studied medicine, and graduated at the age of twenty with much distinction.

To complete his medical education and perfect himself in some special branches he now set out on his travels, first visiting Prague where Professor Arlt then occupied the chair of Ophthalmology. It was this distinguished man who first awakened Graefe's interest in this department, and the relation of master to pupil soon cemented a warm and life-long friendship. From Prague he went to Vienna and became an attendant on the instruction of the venerable Friedrich Jaeger, then in the zenith of his fame. Thence to Paris, where, as the pupil of Sichel and the *chef de clinique* of Desmarres, he enlarged his experience and prosecuted independent investigations, the results of which were soon to appear. After a brief stay in London, Dublin and Edinburg, he returned home and commenced his brilliant career.

His ample fortune enabled him to establish, in the outset, a private hospital, designed for both rich and poor. In concert with Arlt (now transferred to Vienna) and the renowned Donders, Professor at Utrecht, he founded the magazine known as the *Archiv*, which has continued to the present day, and in whose ample volumes are contained those discoveries and investigations which have rescued Ophthalmology from its former position as a department of surgery, and elevated it to the rank of an independent science. Nor need it be said that the lion's share in this task was borne by Graefe himself. Material for his studies did not fail to be richly supplied. As his

renown rapidly augmented, patients poured in from every side, coming in many cases from remote lands, to enjoy the advantage of his skill. His pupils multiplied day by day, not only students of medicine but experienced physicians hastening to avail themselves of his instruction. The University elevated him to the post of Professor, the Goverment bestowed on him the distinction of Privy-councillor, while other high marks of consideration constantly accompanied his progress. There is hardly in the history of medicine another instance of a man so young attaining such universal and deserved celebrity.

A complete catalogue of his labors would be out of place in so brief a notice as the present. An allusion to a few of the better known must suffice, and I am unfortunately unable to vouch for the chronological order of these, writing as I do without any power of reference to books or papers. One of his earliest treatises was on the physiology and pathology of the *trochlearis* muscle, and was followed by an essay on *strabismus*. Both of these papers have become classic, and mark the first advances into an obscure and almost unexplored field. This was always a favorite department of Graefe's, and it was his merit to have elevated the treatment of strabismus, of muscular paralysis and of muscular insufficiency to an almost certain basis, by means of a series of exhaustive investigations, and to have caused the operations for their relief to rank among the most satisfactory in surgery. He traced the influence of the internal inflammation known as *sclerotico-choroiditis* on myopia, and pointed out its appropriate treatment. He discovered the seat and nature of *glaucoma*, a disease as lamentably prevalent as it was formerly universally fatal to vision, and gave to the world the operation for its relief. This was perhaps his crowning glory, and more than anything else contributed to the spread of his renown. More recently, the extraction of cataract engrossed his special attention, and the operation now in general use, and which is conceded by nearly all to offer the best chances of success, is the result of his inventive skill.

His assiduity was unwearyed. Before the progress of disease had rendered it impossible, he was at his desk at seven in the morning, answering letters, writing for his *Archiv*, or engaged in study. At nine came his lecture at his private hospital, alternating with a clinical conference, at which patients were brought forward and their cases discussed. Then his visit at the Charité, his round in the city, a hasty din-

ner often snatched in his carriage, and at 2, P.M., his operations, sometimes twenty or thirty in number, and embracing every variety of ophthalmic surgery. The Poliklinik followed, at which from one to two hundred poor patients were admitted, prescribed for, and, if necessary and space permitted, retained in the house for operation or treatment. A hasty visit through the wards of his extensive establishment, and then he drove rapidly home to hold his own private office hours. These commenced at seven in the evening and would last till late into the night, from fifty to seventy being often prescribed for. When they were gone, Graef would return to his scientific labors, interrupted in the morning, and continue them till forced to seek repose.

Such restless activity finally told on a system naturally delicate and severely affected by an attack of pleurisy ten years ago, during the progress of which his life was more than once despaired of. A phthisical tendency, long suspected, developed itself during the past year with startling rapidity. At the commencement of the summer of 1869 he was forced to abandon his lectures for the purpose of seeking another climate, and the Heidelberg Society, at its meeting in September last, was for the first time deprived of the presence of its founder. Late last autumn he returned to Berlin, and for a time carried on his usual labors with a portion of his former energy. Called in consultation to Vienna in the course of the winter, the stairways and waiting-rooms of his hotel were blocked with the concourse of patients who had heard of his sudden arrival, and sought to avail themselves of his skill. On his return to Berlin he steadily failed, but insisted on working to the end. An operation of importance demanded his attention. He was lifted from his carriage, carried in a chair to the bedside, and there with trembling hand he treated his last patient. It was his final visit to the hospital. He lay ground day by day, lingered on through the spring and early summer, and at three o'clock on the morning of July 20th passed quietly away.

quietly away.

Græfe's personal appearance was most striking. Tall and thin, slightly bent forward, his long flowing hair streaked with gray, his features finely cut and regular, his expression full of vivacity and intelligence, he never failed to impress the beholder with the feeling that he was in the presence of a man of rare and wonderful genius.

His beneficence was unbounded. Not only his personal dependents, but the poor in general were the recipients of an unstinted liberality. I am able to state from personal knowledge that cataract patients devoid of means were received into and maintained in his private hospital, free of charge, provided with glasses after the operation, and furnished with a passage home. A large portion of his princely income was thus bestowed in charity.

None knew Graefe as well as those who sat at his feet, listened to his teachings, watched his works and strove, at a distance, to follow in his path. Never in our profession was a brilliant career more suddenly arrested, never a master more regretted by those whose double happiness it was to call him both teacher and friend.

## HASKET DERBY.

Innsbruck, July 31, 1870.

We are also permitted to make an extract from a private letter of Dr. R. H. Derby, of Boston, describing the funeral of v. Graefe:—

"I wrote you a few days since of the terrible loss the world had sustained in v. Graefe's death. Saturday evening was his funeral, and I remained so long in Berlin to see the last honors tendered to my dear teacher and friend. All Berlin seemed to forget for the time the anxious thoughts that filled every one's mind of the impending war. The Victoria Strasse, where Graefe lived, all the neighboring streets, wherever there was standing room, were filled with delegations from the city, students with their corps and banners, equipages from the Court with footmen in royal livery. The funeral corage was one of the largest that I ever saw. The house was reached with difficulty, so dense was the crowd—all of the halls were filled; finally we entered the room where all that was mortal of Graefe lay. The coffin was covered with white flowers and immortelles. At one end rested a small bust, surrounded with decorations, and in the center at different times upon Graefe—one of the last from the Emperor of Russia given on the occasion of his last visit to Berlin. (He sent it the morning after his arrival, with the remark, 'it was not alone for the service that he had rendered the Russian Royal family, but that every university in his kingdom was supplied with a pupil of Graefe's.') In a semicircle about the catafalque stood Graefe's wife and the three little children and his sister, the faculty of the University, chamberlains from Court, and those who had known and loved him. A funeral oration was pronounced and a hymn sung by a choir of men. It was a sad moment. The young wife could hardly have felt more lonely than those of us who were not united by family ties with him. I had learned to regard Graefe as something superhuman, in comparison with whom others seem small and pigmies. I have but a few months, amid the anxieties and responsibilities of my position at the clinic, have I gone to the Professor for advice, and how did every difficulty seem to fade away with his assistance. Thank Heaven that it was my fortune to have so much of Graefe during the last year; it has been an experience worth all my other years of study."

THE Boylston Prizes of two hundred dollars each, offered by Harvard University, have been given to Dr. H. P. Walcott, of Cambridge, and Dr. G. D. Daly, of La Sueur, Minn., for dissertations on "Aphasia, or the Relation of the Brain to Speech."

## Medical Miscellany.

**RHODE ISLAND HOSPITAL.**—The attention of students in the third year of their course and of recently graduated physicians is called to the advertisement for house-physician in the Rhode Island Hospital, which becomes vacant on the 1st of September.

ACCORDING to Dr. Pavý, opium, morphia and codeine all possess the property of checking the elimination of sugar by the urine. Codeine is most powerful, commencing with one half-grain dose and going on to ten-grain doses thrice a day. A man, aged 50, after restricted diet and alkalies, was passing urine of specific gravity 10-38, with 26-64 grains of sugar per ounce. After thirty days of opium there was no sugar, and the specific gravity of the urine was 10-25. On leaving off the opium again, the specific gravity rose to 10-48, and 10-65 grains of sugar were passed in twenty-four hours. On renewing the opium, the sugar immediately lessened, although he continued to take ordinary food. A woman, aged 68, passed five pints of urine of 10-40 specific gravity, and sugar to the extent of 32-72 grains daily. By the use of opium, with ordinary diet, the urine in three months was of specific gravity 19-16, and quite free from sugar. She continued well for twelve months; then anxiety and overwork renewed the disease. Again three months of codeine completely cured her. This is a great discovery of Dr. Pavý's.—*National Med. Journal.*

**AMMONIA HYPODERMICALLY IN COLLAPSE FROM UTERINE HEMORRHAGE.**—Dr. E. G. Wake, of Collingham, reports a case of collapse from the above cause, in which the pulse was not felt at the wrist for more than one hour. In his eagerness to apply a powerful remedy, he injected a few minimis of strong liquor ammonia over the sternum. This operation was repeated three other times, upon other parts of the body. He introduced, at each injection, from ten to twenty minimis. The patient rallied speedily under the influence of the stimulant and made a good recovery. The treatment, however, was followed by four frightful sores.—*Richmond and Louisville Medical Journal.*

**INCOMPATIBILITY OF SULPHATE OF QUINIA AND DIGITALIS.**—A physician having prescribed the syrup of digitalis, of the Codex, and directed the addition of acid sulphate of quinia, observed a precipitate in the bottle. Presuming a mistake had been committed by the apothecary, he sent the mixture to a chemist for examination. The physician was told that his prescription directed the mixing of incompatibles, the tannin of the digitalis combining with the quinia to form an insoluble tannate. The chemist, M. Stan. Martin, states that the alkaloids should be administered uncombined with other articles, and, when required in solution, water should be the vehicle.—*Journal de Pharmacie et de Chimie.*

**A NEW ANESTHETIC.**—Dr. Liebreich, of Berlin, asserts that he has discovered a substitute for

chloroform, the use of which is free from all the disagreeable sensations consequent upon the use of that drug. He calls it ethylen chloride. It is a colorless fluid, of an agreeable odor and very volatile. Sleep suddenly overtakes the inhaler, and he wakes quickly and involuntarily, as from a natural slumber.

If this statement be true, Dr. Liebreich will prove himself one of the greatest benefactors of the human race that has lived. It were glory enough for one man to have introduced so great a boon as chloral hydrate.—*Med. & Surg. Rep.*

**THE GLYCEROLE OF IODINE.**—This preparation, recommended for loss of voice, is composed of a solution of sixteen grains of iodine in one ounce of inodorous glycerine.—*Med. Record.*

**TO CORRESPONDENTS.**—Communications accepted.—  
The Use of Peptin—Urticaria—Moxie—Iodide of Potassium in Bronchial Asthma—Case of Stricture of the Rectum from Cancerous Inflammation; Death.

**FAMPLETS RECEIVED.**—Specialism, its Relations to Practical Medicine. By S. G. Hubbard, M.D., Professor of Obstetrics and Diseases of Women and Children in Yale College. Pp. 19.—Reports of the Board of Visitors and Trustees, and of the Treasurer, Superintendent, Building Committee, and Auditor, of the New Hampshire Asylum for the Insane, to the Legislature, June Session, 1870. Pp. 44.

*Deaths in seventeen Cities and Towns of Massachusetts for the week ending Aug. 27, 1870.*

City and town.	Number of deaths in each place.	Prevalent Diseases.	Con-
Boston	129	30	16
Charlestown	17	6	0
Worcester	33	9	6
Lowell	19	2	2
Milford	5	1	0
Chelsea	4	0	1
Cambridge	32	9	3
Salem	12	2	2
Lawrence	7	0	2
Springfield	7	1	0
Lynn	15	3	2
Pittsfield	2	1	0
Fitchburg	3	0	0
Taunton	4	2	1
Newburyport	7	1	1
Fall River	9	3	2
Haverhill	5	0	3
	310	70	41

From all the above-named places there are reported twenty-two deaths from dysentery and diarrhoea, and sixteen from typhoid fever.

GEORGE DERBY, M.D.,  
Secretary of State Board of Health.

**DEATHS IN BOSTON** for the week ending Saturday, Aug. 27th, 129. Males, 72; females, 57. Accident, 2; apoplexy, 1;—inflammation of the bowels, 2;—congestion of the brain, 1;—inflammation of the brain, 3; bronchitis, 1;—cancer, 4;—cholera infantum, 30;—cholera morbus, 3;—consumption, 16;—convulsions, 4;—cynanche, 2; debility, 2;—delirium tremens, 1;—diarrhoea, 10;—diphtheria, 1;—droopy of the brain, 2;—drowned, 3;—dysentery, 4;—scarlet fever, 2;—typhoid fever, 4;—disease of the heart, 4;—disease of the kidneys, 2;—disease of the liver, 1;—congestion of the lungs, 1;—inflammation of the lungs, 1;—marasmus, 4;—measles, 1;—old age, 3;—paralysis, 2;—peritonitis, 2;—premature birth, 1;—purpura, 1;—teeth, 4;—unknown, 4;—whooping cough, 1.

Under 5 years of age, 68—between 5 and 20 years, 12—between 20 and 40 years, 19—between 40 and 60 years, 16—above 60 years, 14. Born in the United States, 97—Ireland, 19—other places, 13.